Quirks and Quarks

This Canadian physicist knew years ago that infections like COVID-19 could be airborne

Her research showed in 2014 that the two-metre social distancing public health guidelines were outdated

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Lydia Bourouiba, a fluid dynamicist from the Massachusetts Institute of Technology, tried to warn officials at the U.S. Centers for Disease Control and Prevention that her research from 2014 showed that two-metre social distancing guidelines for COVID-19 were outdated. (Lillie Paquette/MIT School of Engineering)

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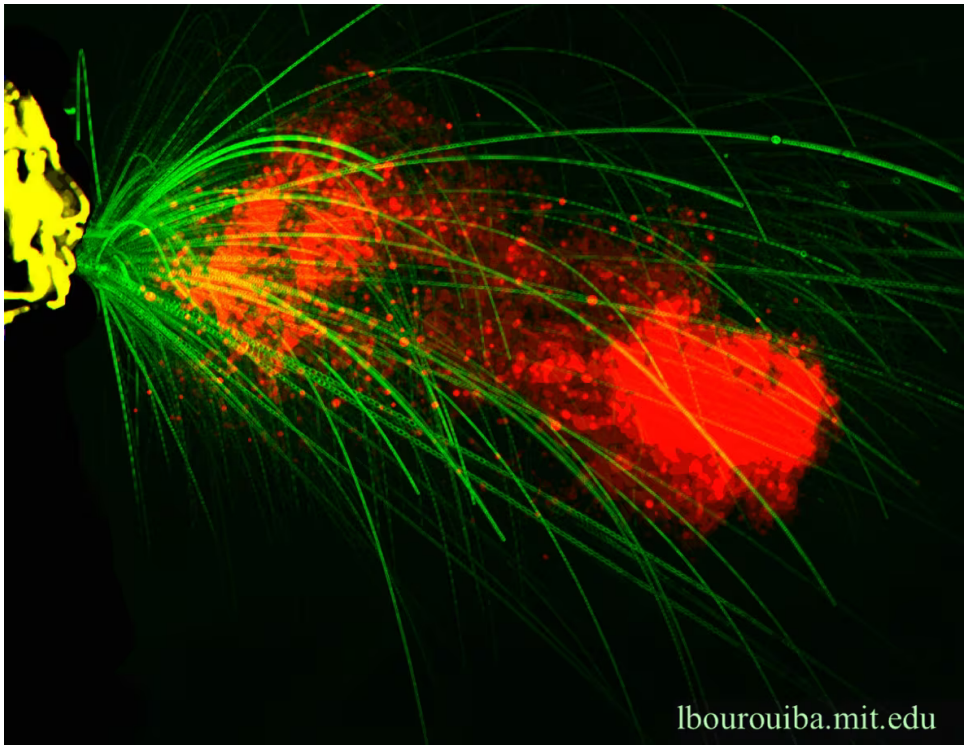
When the history of the COVID-19 pandemic is written, the reluctance of public health officials to acknowledge airborne spread of the virus — something scientists from other disciplines have known for a long time — will be a big part of that story.

At the beginning of the pandemic, in January 2020, Canadian physicist Lydia Bourouiba, tried to alert the U.S. Centers for Disease Control and Prevention (CDC) that her research proved in 2014 that their guidance to stay two metres away from others to avoid large droplets from coughs or sneezes was outdated. Bourouiba is an associate professor at the Massachusetts Institute of Technology's Institute for Medical Engineering and Science and the director of their Fluid Dynamics of Disease Transmission Laboratory.

Her lab's research into the fluid dynamics of coughs and sneezes showed how droplets can remain aloft, travelling in a cloud of gas much further than previously thought possible.



A germ-spreading sneeze unleashes a shower of large liquid droplets and a moist gas cloud of smaller ones. (Bourouiba Lab/MIT)

Those findings contradicted the dominant medical understanding that the transmission of respiratory viruses only occurred with large droplets that fell within two metres.

As evidence that COVID-19 was predominantly spread through the air started piling up, there has been a significant shift on the part of public health officials in communicating the importance of masking and ventilation, but still, while organizations like Health Canada and the World Health Organization have acknowledged that the virus is spread through aerosols, they haven't said that airborne transmission is the primary driver of the virus's spread.

Bourouiba told *Quirks & Quarks* host Bob McDonald that it saddens her how long it's taken for public health officials and infectious disease experts to integrate research findings like hers, which are from other fields that specialize in the underlying mechanisms of transmission.

Produced and written by Sonya Buyting. Click on the link at the top of the page to hear the interview with Prof. Lydia Bourouiba.

Clarifications

- This story has been updated to clarify that while organizations like Health Canada and the World Health Organization acknowledge aerosol transmission, neither say it is a primary form of transmission.
  Nov 29, 2021 3:47 PM EST